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ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024

EXAMINER	
KELLEY, STEVEN SHAUN	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,057	LUNDIN ET AL.	
	Examiner	Art Unit	
	STEVEN KELLEY	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1-20-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 22 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A "single means" claim (as recited in claim 22) is not allowed under section 112. Independent claims 22 and 26 recite conditional phrases such as "if said node" or "unless said node", which are indefinite.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. 2004/0266394 to Mizell et al. (hereinafter "Mizell") in view of U.S. Patent Pub. 2006/0050711 to Lialiamou et al. (hereinafter "Lialiamou").

Regarding claim 1, Mizell teaches an arrangement, for allowing compensation of lost, discarded or unsent traffic on the downlink in a communication system supporting communication of packet data and classification of mobile traffic allowing application of

different charging schemes for different types of traffic (see Fig. 2), comprising a packet data node (GGSN 120) handling classification of traffic into different types, including service class, and for applying an appropriate charging scheme depending on type (see step 272 in Fig.7 "In the GGSN, generate a corresponding charging record relating a charge rate to a quantity of data packets transmitted at the charge rate" as described in section [0044], GGSN inspects packets to determine (recited "handle") content type, see section [0031]), that said node provides and sends information relating to type, including service class, to subsequent nodes on the downlink to a mobile station (GGSN transmits content aware billing rate information which is "related to class of service" to SGSN, additionally, any packet received at GGSN (from IP network 128) which includes "class of service" information in it's header, when forwarded by GGSN to SGSN, the GGSN will "handle and provide information relating to type, including service class, to subsequent nodes"), wherein a subsequent node detecting a packet loss, notes said loss and enables use of the information of said loss together with type information to enable for correction of charging due to traffic loss (see steps 288 and 292 in Fig. 7, where the SGSN generates a report relating to charge rate and number of packets transmitted and calling gateway function (CGF) determines charge based on reports from GGSN and SGSN) .

As described above, although Mizell is "content aware", teaches supporting different levels of QoS (see section [0009]), provides additional billing rate information in the header of content based on the type content and may also inherently "handle and provide information relating to service class" (by forwarding service class information

already included in packet headers), Mizell does not explicitly teach that the GGSN "provides and sends information relating to service class", as recited.

In an analogous art, Lialiamou teaches a system which provides different charging policies based on a determined type of flow and/or QoS (see Abstract and section [0044]). Fig. 3 of Lialiamou shows a network element (which is a GGSN) which determines a type of flow and applies the appropriate charging policy. Lialiamou teaches in sections [0064] to [0067] that the type of flow is determined by "flow parameters" such as "type of service" and "traffic class" information included (and read by the GGSN) in the packets. As described in sections [0056] to [0057] for example, the GGSN outputs a call detail record (CDR) for billing purposes which includes "information on flow definitions" (recited "class of service", as a flow is defined by QoS, "type of service" or "traffic class"), amount of data included in the flow, and the charging information of the flow.

Therefore, as both Mizell and Lialiamou teach billing based on content and volume of content, it would have been obvious to one of ordinary skill in the art to modify Mizell to "provide class of service information" to a subsequent node, in order to allow the subsequent node to properly identify a class of service (and associated lost packets) and produce accurate billing records for the identified class of service.

Regarding independent claims 22 and 26, which recite features similar to claim 1, see the rejection of claim 1. Regarding the feature (in claims 22 and 26) reciting that the subsequent node (SGSN) sends reports relating to discarded/lost traffic packets,

with type information, to said packet data node (GGSN), "unless or if the node (SGSN) does not support content based charging", as the SGSN (in Mizell) generates a billing record (which is transmitted to the CGF), the SGSN may be interpreted to "support content based charging", therefore the SGSN does not have to perform this recited feature (of transmitting the report back to the GGSN).

5. Claims 2-8, 10-11, 13-16, and 21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizell and Lialiamou as applied to claim 1 above, and further in view of U.S. Patent 7,177,277 to Koponen et al. (hereinafter "Koponen").

Regarding independent claims 22 and 26, which recite features similar to claim 1, see the rejection of claim 1. Regarding the feature (in claims 22 and 26) reciting that the subsequent node (SGSN) sends reports relating to discarded/lost traffic packets, with type information, to a preceding packet data node (GGSN), "if the node (SGSN) does not support content based charging", Mizell and Lialiamou do not explicitly teach this feature.

In an analogous art, Koponen teaches classifying packets based on different classes (or priorities) and transmitting packet acknowledgements from an SGSN to a GGSN. Koponen also teaches that a "GGSN is responsible for collecting and billing data" (see column 3). Column 10, lines 40-45 of Koponen recites "It Is also possible to define a message interface between the SGSN and the GGSN so that the SGSN would inform the GGSN if it discards a packet. Then the GGSN could avoid erroneous

charging". Therefore, as Koponen is also related to providing accurate billing based on successfully delivered packets, it would have been obvious to modify Mizell to transmit a charging report from the SGSN to the GGSN, when billing is performed in the GGSN, as is conventional.

Regarding claim 2, which recites "wherein radio nodes provide correction/compensation for lost traffic at predetermined intervals loss reports are provided to a preceding packet data node, said loss reports including at least said type information for said discarded/lost data traffic and said packet data nodes includes said type information in a new field in a Call Detail Record or similar", see the CDR reports sent in Mizell and Lialiamou, which are CDRs as recited. Regarding the feature that "radio nodes" provide correction for lost traffic, see for example, column 6, lines 42-44 and column 7, lines 5-7, which teach the "radio part 30" (recited radio nodes) transmitting packet retransmission requests to the SGSN, the GGSN and acceleration server 45. Therefore, as the communication network shown in Fig. 1 of Mizell employs mobile stations 104, base station controllers 108 and RNS 136 (which are radio nodes), and as packet acknowledgement and retransmission requests (as taught by Koponen) are also conventionally performed between these other downstream nodes (mobile station, base station and RNC), it would have been obvious to modify the packet retransmission requests (recited "compensation for lost traffic at predetermined intervals loss reports") to be performed by these downstream (recited "radio nodes"), in order to

ensure that packets are also successfully delivered downstream of the SGSN, as is conventional.

Regarding claim 3, which recites "wherein charging correction/compensation for lost traffic is performed in real time and loss reports are provided from radio nodes to a preceding packet data node at occurrence of the loss, and in that a loss report including type information is provided to the packet data node supporting flexible charging together with subscriber information and access point identification in a new message, e. g. a new GTP-message", see the rejection of claim 2 above. Regarding the feature of "a new GTP message", as Mizell repeatedly teaches using GTP protocols, it would have been obvious to one of ordinary skill in the art to put subscriber information (which would be included in the generated CDR) in a new GTP message, as is conventional when using GPRS networks. Regarding the feature that the reports are in real time, the reports of Mizell and Lialaimou are performed in real time and the retransmission requests of Koponen are in real time, as recited.

Regarding claim 4, which recites "wherein the packet data node comprises a packet data node with a gateway functionality", the GGSNs of Mizell and Lialiamou have gateway functionality, as recited.

Regarding claim 5, which recites "wherein that the packet data node comprises a serving packet data node", see column 10, lines 32-34 of Koponen, which teach that a "SGSN, GGSN and accelerating server could be incorporated into s single device". Therefore it would have been obvious to modify the packet data node of Mizell to include a "serving packet data node" (or SGSN), as recited.

Regarding claim 6, which recites "wherein the packet data node comprises a packet data serving functionality and a gateway functionality", as described above in the rejection of claim 5, column 10, lines 32-34 of Koponen render obvious a packet data node with both SGSN and GGSN functionality, as recited.

Regarding claim 7, which recites "wherein said packet data node handling classification and labeling provides traffic packets with service class information and rating information", the GGSN of Mizell as modified by Lialiamou, provides "service class information and billing (recited "rating") information", as recited.

Regarding claim 8, which recites "wherein said packet data node handling classification and labeling provides traffic packets service class information and a time stamp", although Mizell and Lialaimou do not explicitly teach a "time stamp", this information would be obvious to include in a CDR, as is conventional, and in view of Lialaimou's teaching of time-based billing, which would motive one of ordinary skill to include a time stamp.

Regarding claim 10, which recites "wherein the packet data node is an access node in a GSM/GPRS system in communication with BSCs", see Fig. 1 of Mizell which shows the data packet nodes (GGSN 120 and SGSN 116) communicating with BSC 108, as recited.

Regarding claim 11, which recites "wherein the packet data is an access node supporting a UMTS/GPRS system and supports communication with RNCs", see Fig. 1 of Mizell which shows the data packet nodes (GGSN 120 and SGSN 140) communicating with RNC 136, as recited.

Regarding claim 13, which recites “wherein loss reports relating to discarded traffic are sent periodically and at given times”, the reports of Mizell and Lialaimou and the retransmission requests of Koponen are all sent periodically, as recited.

Regarding claim 14, which recites “wherein loss reports relating to discarded traffic are sent based on the volume of given types of the discarded traffic or service classes”, a request fro retransmission report in Koponen is based on “volume” (of at least one) discarded packet of traffic, as recited.

Regarding claim 15, which recites “wherein loss reports relating to discarded traffic are provided/sent in real time, substantially instantly at the occurrence of a loss directly or indirectly to the node handling flexible charging”, the reports of Mizell and Lialaimou and the retransmission requests of Koponen are all sent in real time, as recited.

Regarding claim 16, which recites “wherein the classification and charging scheme application handling is performed by a gateway packet data node and in that it supports a content based charging functionality”, the GGSN of Mizell (as modified above) performs these features, as recited.

Regarding claim 21, which recites “wherein the subsequent nodes register at least type and amount of information about discarded packets”, the SGSN of Mizell “registers at least type and amount of information about discarded packets”, as recited.

Regarding claim 23, which recites “further comprising a serving packet data support node (SGSN), a gateway packet data support node (GGSN) or a combined

gateway and serving packet data support node (CGSN)", see GGSNs of Mizell and Lialiamou, as recited.

Regarding claim 24, which recites "further comprises means for forwarding service class information (QoS), rating information or time stamp information for sent packets and optionally for chain information (chain id) to subsequent nodes", as described above, Mizell sends billing or "rating" information and Mizell as modified by Lialiamou, sends service class information, as recited.

Regarding claim 25, which recites "further comprises means for supporting real time compensation/correction for lost packets, wherein loss reports are provided in real time", the retransmission requests in Koponen "support real time compensation", and the reports of Mizell are provided in real time, as recited.

Regarding claim 27, which recites "wherein the step of sending information comprises sending service class, rating information or providing a time stamp for a packet and, optionally, information for identifying the chain an IP packet belongs to", as described above, Mizell sends billing or "rating" information and Mizell as modified by Lialiamou, sends service class information, as recited.

Regarding claim 28, which recites "wherein the reporting step comprises: sending a report including subscriber id (IMSI), access point id (NSAPI) from a node, upon detecting that a packet is discarded, to allow for real time compensation/correction, wherein such node further registers discarded packet type and amount of discarded packets", as the report sent from SGSN of Mizell is a call detail record and he report sent in Lialiamou is a call detail record (CDR), although an

IMSi and NSAPI are not explicitly mentioned, these would be obvious (if not inherently necessary) to include in a CDR, in order to bill the identified subscriber, as is conventional. Regarding the "real time compensation/correction of lost packets", the retransmission requests of Koponen allow for real time compensation, as recited.

Regarding claim 29, which recites "wherein the reporting step comprises: introducing the reporting information in a packet sent over the relevant protocol between nodes up to the node handling classification/content based charging", the reporting in Mizell and Lialiamou is sent "over the relevant protocol between nodes up to the node handling classification/content based charging", as recited.

Regarding claim 30, which recites "wherein the node handling classification/charging comprises one of a gateway packet data node (GGSN), a serving packet data node (SGSN) or a combined gateway and serving packet data node (CGSN)", the "node handling classification/charging" is the GGSN of Mizell.

Regarding claim 31, which recites "wherein reporting is performed based on volume, with given time intervals or at given points in time", see for example, sections [0044] and [0061] of Lialiamou, which teaches volume metering and counters, as recited.

6. Claims 12 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizell and Lialiamou as applied to claim 1 above, and further in view of U.S. Patent 7,072,358 to Suvanen (hereinafter "Suvanen").

Regarding claim 12, which recites “wherein the packet data node is a dual access node supporting communication with BSC's and RNC's”, Fig. 1 of Mizell teaches data packet nodes communicating with BSCs and RNCs separately.

In an analogous art, Suvanen shows in Fig. 3 an access node which is a dual access node capable of communicating with both BScs and RNCs. Therefore, given the teachings of combining devices (and functions) of multiple devices into a single device, it would have been obvious to modify the packet data node of Mizell to be a “dual access node”, in order to be compatible with both UMTS and GSM networks, as is conventional.

Regarding claim 17, which recites “wherein information relating to type is provided to a packet data node with a serving functionality, and said node forwards such information to subsequent nodes, and if a different protocol is used than the protocol used between the serving node and the gateway packet data node, a conversion is performed such that the information can be sent over said different protocol”, see for example, claim 2 of Suvanen, which teaches converting data to either UMTS or GSM protocols. Therefore, it would have been obvious to one of ordinary skill in the art to “convert protocols” in Mizell “if a different protocol is used than the protocol used between the serving node and the gateway packet data node”, as recited, in order to be compatible with different types of networks, as is conventional.

Regarding claim 18, which recites “wherein the serving packet data node is a SGSN, the gateway packet data node is a GGSN and in that the information relating to at least type is added to the GTP header of the downlink payload to SGSN, if relevant to

RNC's, whereas if it is to be forwarded to BSC's, the information is included in the BSSGP header", Mizell as modified above, includes type information in a header (when relevant to RNCs), as recited. Regarding the feature that the "information is included in the BSSGP header" (when relevant to BSCs), given the teachings of the references, it would have been obvious to one of ordinary skill in the art to "information is included in the BSSGP header", in order to be compatible with different types of networks and devices, as is conventional.

7. Claims 9 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizell, Lialiamou and Koponen as applied to claim 3 above, and further in view of the specifications documents cited in the instant specification.

Regarding claim 9, which recites "wherein the traffic packets are provided with chain identification information", as chain identification information is conventional data (taught in the standards documents cited in the instant application on pages 5, 6 and 8) it would have been obvious to one of ordinary skill in the art to modify Mizell to include this information, in order to correctly track packet losses, as is conventional.

Regarding claim 19, which recites "wherein an RNC having discarded traffic, a loss report comprising a RANAP Data Volume Report is sent at occurrence of the loss of data to the preceding packet data node uplinks and unless such preceding node handles flexible charging, it sends the new loss report message with IMSI, NASAPI to the node handling such functionality", although the packet retransmissions of Koponen

(which come from radio nodes such as an RNC), may include indications of volume of traffic, these reports are not explicitly "data volume reports". As cited on page 8 of the instant specification the 3GPP TS 25.413 specification teaches "data volume reports". Therefore, in order to communicate with specific devices/networks, it would have been obvious to modify Mizell to use data volume reports, as is conventional.

Regarding claim 20, which recites "wherein for a BSC having discarded traffic, a loss report including at least service class information, rating information or a time stamp, is sent to the preceding packet data node uplinks at occurrence of the loss for charging correction/compensation, wherein said packet data node, unless the packet data node handles the flexible charging functionality, provides the new loss report message with IMSI, NSAPI to the node handling such functionality", Mizell as modified above sends service class information and rating information to a preceding node, as recited. Additionally, as cited on page 6 of the instant specification the 3GPP TS 48.018 specification teaches using IMSI and NSAPI identifiers. Therefore, in order to communicate with specific devices/networks, it would have been obvious to modify Mizell to use data volume reports, as is conventional.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN KELLEY whose telephone number is (571) 272-5652. The examiner can normally be reached on Monday-Friday, 9AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SSK/

/LESTER KINCAID/
Supervisory Patent Examiner, Art Unit 2617